# AIR FORCE

# QUALIFICATION TRAINING PACKAGE

# (AFQTP)


**for**

**STRUCTURAL**

**(3E3X1)**

## MODULE 17

## EXTERIOR CONSTRUCTION AND FINISHING

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## MODULE 17

## EXTERIOR CONSTRUCTION AND FINISHING



Career Field Education and Training Plan (CFETP) references from 1 Apr 97 version.

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# AIR FORCE QUALIFICATION TRAINING PACKAGES
**for**
**STRUCTURAL**
**(3E3X1)**

## INTRODUCTION

***Before starting this AFQTP,*** refer to and read the "Trainee/Trainer Guide" located on the AFCESA Web site **http://www.afcesa.af.mil/**

***AFQTPs are mandatory and must be completed*** to fulfill task knowledge requirements on core and diamond tasks for upgrade training. ***It is important for the trainer and trainee to understand*** that an AFQTP ***does not*** replace hands-on training, nor will completion of an AFQTP meet the requirement for core task certification. AFQTPs will be used in conjunction with applicable technical references and hands-on training.

***AFQTPs and Certification and Testing (CerTest) must be used as minimum upgrade requirements for Diamond tasks***.

## MANDATORY minimum upgrade requirements:

***Core task:***
AFQTP completion
Hands-on certification

***Diamond task:***
AFQTP completion
CerTest completion (80% minimum to pass)

***Note:*** *Trainees will receive hands-on certification training for Diamond Tasks when equipment becomes available either at home station or at a TDY location*.

***Put this package to use.*** Subject matter experts under the direction and guidance of HQ AFCESA/CEOT revised this AFQTP. If you have any recommendations for improving this document, please contact the Structures Career Field Manager at the address below.

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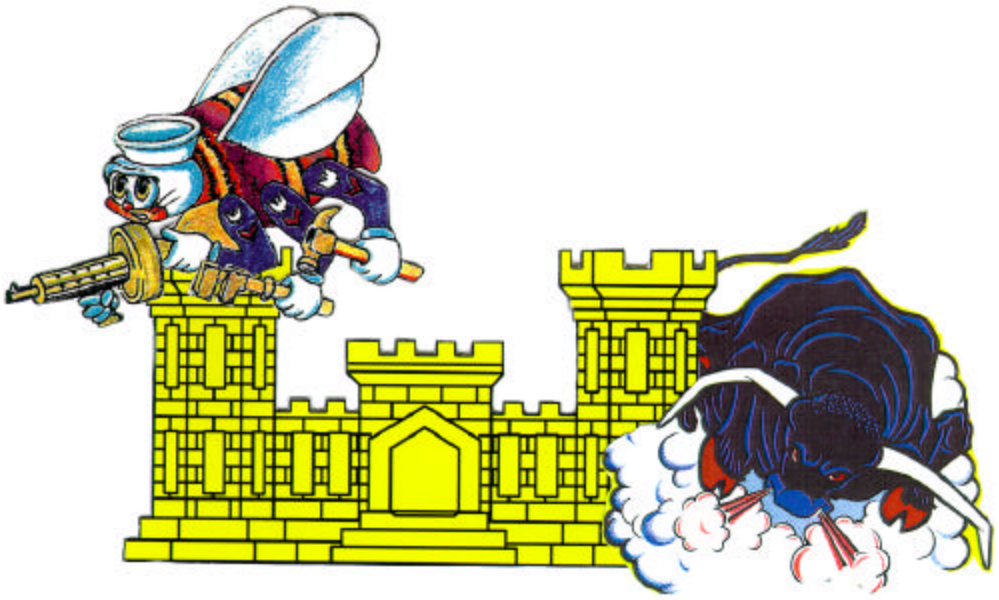
**Notice.** This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.



# EXTERIOR CONSTRUCTION AND FINISHING

## MODULE 17 AFQTP UNIT 9

## CUT GLASS (17.9.)

**Notice.** This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

# CUT GLASS

## *Task Training Guide*

| | |
|---|---|
| **STS Reference Number/Title:** | 17.9. Cut glass |
| **Training References:** | • 3E351 CDCs<br>• NAVEDTRA 12521 |
| **Prerequisites:** | • Possess as a minimum, a 3E331 AFSC |
| **Equipment/Tools Required:** | • Glasscutter, T-square or Straightedge, Tape measure, Gloves, Eye protection. |
| **Learning Objective:** | • Individual should be able to cut glass for a specific job. |
| **Samples of Behavior:** | • Trainee will be able to cut glass using all safety precautions. |
| **Notes:** | |
| • All safety equipment must be worn while performing this task. | |

## CUT GLASS

**Background:** Cutting glass is a matter of confidence and experience. Snapping glass takes a tremendous amount of skill to do it right the first time. There are several types of glass including, tempered, laminated and insulated just to name a few. Tempered glass can not be cut or drilled because it is 5 times stronger than normal glass.

Before you start to cut the glass, make sure that your table is clean and flat. Ensure that your glasscutter is well oiled. After acquiring the proper measurements, subtract 1/8 inch from both width and length.

**NOTE:**
Glass expands and contracts with the cold in the winter and the heat in the summer.

Lay your glass on the table, then score a line on the glass using a straightedge as a guide. Score the glass once. The objective is to score the glass, not cut through it. You should be able to hear the cutter "bite" into the glass as you're cutting. Using the other side of the glasscutter, lightly tap on the opposite side of the glass, causing the glass to break on the line. On light pieces of glass, a wooden dowel may be used underneath the glass on a flat surface. That way, the glass can be snapped on the line. If the glass does not break, you should use pliers, or the other side of the glasscutter, to "nibble" off the extra glass. You can smooth off the edge of the glass by using an oilstone dipped in water. Rub the stone at a 45-degree angle to the glass, rubbing it side to side not up and down.

**HINT:**
Before ordering any glass, make sure that the measurements of the glass to be ordered are exact, because getting the right size glass the 1st time is very important and does not waste time or money.

**SAFETY:**
**ENSURE ALL PROTECTIVE EQUIPMENT IS ON DURING THE CUTTING PHASE.**

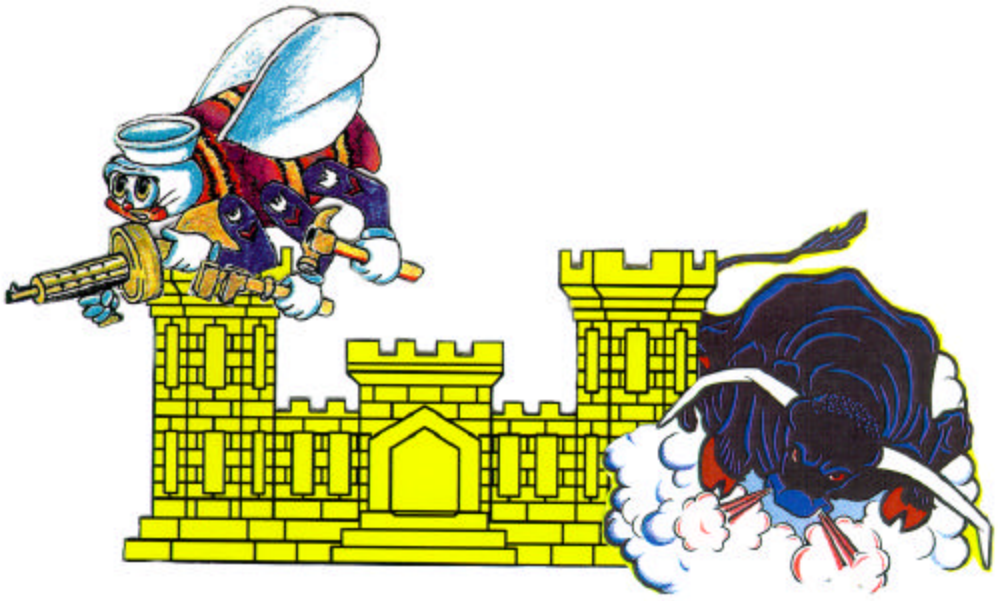
# Review Questions
## for
# Cut Glass

| Question | Answer |
|---|---|
| 1. Cutting glass is a matter of confidence and experience. | a. True<br>b. False |
| 2. What do you subtract from the measurement before you cut the glass? | a. 1/4 inch<br>b. 3/8 inch<br>c. 1/8 inch<br>d. 1/16 inch |
| 3. The objective is to score the glass not cut the glass. | a. True<br>b. False |
| 4. To smooth the edge of the glass, rub the oilstone up and down the edge. | a. True<br>b. False |

## CUT GLASS

| Performance Checklist | | |
|---|---|---|
| **Step** | **Yes** | **No** |
| 1. Did the trainee subtract 1/8 inch for the measurement before cutting the glass? | | |
| 2. Did the trainee score the line one time only? | | |
| 3. Did the trainee use a straightedge when scoring the glass? | | |

**FEEDBACK:** Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.



# EXTERIOR CONSTRUCTION AND FINISHING

## MODULE 17 AFQTP UNIT 10

## CUT ACRYLIC SHEETS (17.10.)

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# CUT ACRYLIC SHEETS

## *Task Training Guide*

| | |
|---|---|
| **STS Reference Number/Title:** | 17.10. Cut acrylic sheets |
| **Training References:** | • 3E351 CDCs<br>• NAVEDTRA 12521 |
| **Prerequisites:** | • Possess as a minimum, a 3E331 AFSC |
| **Equipment/Tools Required:** | • Table Saw, Band Saw, Panel Saw, Utility Knife and Straight Edge, Jig Saw, Gloves, Eye Protection. |
| **Learning Objective:** | • Individual should be able to cut acrylic sheets for a specific job. |
| **Samples of Behavior:** | • Trainee will be able to cut acrylic sheets using all safety precautions. |
| **Notes:** | |
| • All safety equipment must be worn while performing this task. | |

## CUT ACRYLIC SHEETS

**Background:** Acrylic sheets are also known as Plexiglas. They come in different sizes and thickness, ranging from 1/8 inch to as thick as 4 inches. Acrylic sheets can be used in the place of glass, and when compared to glass, the surface can be scratched very easily. They come with a protective paper on the surface so the sheets will not be scratched. These protective papers should be removed prior to installation.

**HINT:**
Keep the protective paper on the acrylic sheet while cutting to avoid scratches and remove it before installation.

There are several ways to cut sheets, including:

**Using a Utility knife and a straight edge.** Once you acquire your measurements for the piece you need cut, lay the straight edge on the line to be cut and with your knife score the sheet, 3 to 4 times. Put something under the sheet and break the sheet at the score line.

**Using a saw.** There are several saws which can be used to cut acrylic sheets, including: Table saws, Circular saws, Panel saws, Jig saws, and Band saws. You should always make sure that your saw has a crosscut blade on when cutting acrylic sheets, because the blade has a lot of teeth and will cut the sheet with very little chipping. Cut the sheet very slowly so that chipping is reduced to a minimum. Cut the sheet 1/16 to 1/8 inch larger than the actual measurement to allow for chipping. Once cut, you should sand the acrylic sheet to the exact measurement desired.

**SAFETY:**
**ENSURE ALL PROTECTIVE EQUIPMENT IS ON DURING THE CUTTING PHASE.**

# Review Questions
# for
# Cut Acrylic Sheets

| Question | Answer |
|---|---|
| 1. Acrylic sheets are also known as Plexiglas. | a. True<br>b. False |
| 2. Acrylic sheets cannot be scratched very easily. | a. True<br>b. False |
| 3. The protective paper is placed on the sheet to prevent it from scratching. | a. True<br>b. False |
| 4. A saw blade should have a lot of teeth to cut acrylic sheets. | a. True<br>b. False |

## CUT ACRYLIC SHEETS

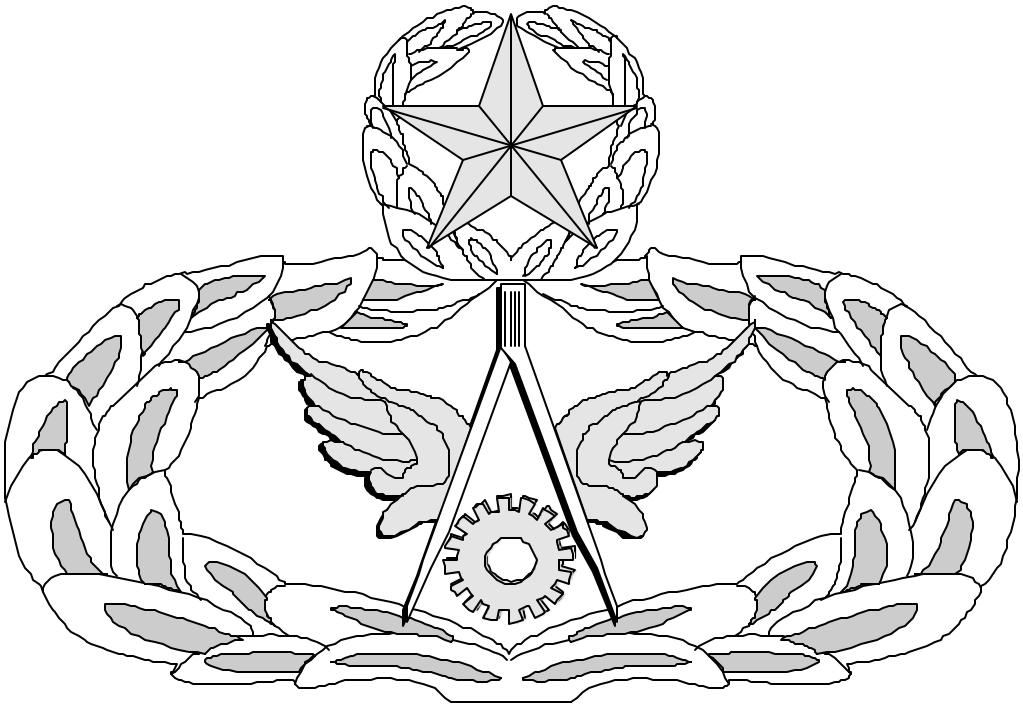
| Performance Checklist | | |
|---|---|---|
| **Step** | **Yes** | **No** |
| 1. Did the trainee use a utility knife and a straight edge to cut the acrylic sheet? | | |
| 2. Did the trainee score the sheet enough times to break the acrylic sheet the first time? | | |
| 3. Was the correct blade on the saw when cutting the acrylic sheet? | | |
| 4. Was the paper still on the sheet while cutting? | | |

**FEEDBACK:** Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

# Air Force Civil Engineer

## QUALIFICATION TRAINING PACKAGE (QTP)

## REVIEW ANSWER KEY



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## CUT GLASS

**(3E3X1-17.9.)**

| Question | Answer |
|---|---|
| 1. Cutting glass is a matter of confidence and experience. | a. True |
| 2. What do you subtract from the measurement before you cut the glass? | c. 1/8 inch |
| 3. The objective is to score the glass not cut the glass. | a. True |
| 4. To smooth the edge of the glass, rub the oilstone up and down the edge. | b. False |

## CUT ACRYLIC SHEETS

**(3E3X1-17.10.)**

| Question | Answer |
|---|---|
| 1. Acrylic sheets are also known as Plexiglas | a. True |
| 2. Acrylic sheets can not be scratched very easily. | b. False |
| 3. The protective paper is placed on the sheet to prevent it from scratching. | a. True |
| 4. A saw blade should have a lot of teeth to cut acrylic sheets. | a. True |